ABSTRACT OF THE DISCLOSURE

The sensitivity of enzyme-based polarographic electrodes to oxygen concentration can be significantly reduced or eliminated by providing an oxygen-reservoir in intimate contact with the oxidative enzyme. This is achieved by making a stabilized emulsion between the enzyme and a compound in which oxygen is extremely soluble. An aqueous glucose oxidase solution is emulsified with a perfluorocarbon liquid, and the resulting emulsion is stabilized by chemically crosslinking the mixture to form a gel. Thin layers of the emulsion are fabricated by spreading a layer of the liquid emulsion before gelation occurs. Additional carrier proteins such as albumin may be added to the enzyme prior to crosslinking to protect enzymatic activity and enhance gel strength. Additional electron transport compounds may be added to further reduce sensitivity to oxygen concentration.